

REMARKS

[0003] Applicant respectfully requests reconsideration and allowance of all of the claims of the application. Claims 1-36 are presently pending. Claims amended herein are 1, 10, 20, and 29-30. Claim withdrawn or cancelled herein is 28. New claims added herein are none.

Statement of Substance of Interview

[0004] The Examiner graciously talked with me—the undersigned representative for the Applicant—on July 10, 2007. Applicant greatly appreciates the Examiner's willingness to talk. Such willingness is invaluable to both of us in our common goal of an expedited prosecution of this patent application.

[0005] During the interview, I discussed how the claims differed from the cited art, namely the present application's background. Without conceding the propriety of the rejections and in the interest of expediting prosecution, I also proposed several possible clarifying amendments.

[0006] The Examiner was receptive to the proposals, and I understood the Examiner to indicate that the proposed clarifying claim amendments appeared to distinguish over the cited art of record. For example, the Examiner indicated that clarification regarding the inclusion of the definition of the first and second polynomial and clarifying that the first value of each polynomial as being a non-zero amount distinguished the independent claims over the cited art. However, the Examiner indicated that he would need to review the cited art more carefully

and/or do another search, and requested that the proposed amendments be presented in writing.

[0007] Applicant herein amends the claims in the manner discussed during the interview. Accordingly, Applicant submits that the pending claims are allowable over the cited art of record for at least the reasons discussed during the interview.

Formal Request for an Interview

[0008] If the Examiner's reply to this communication is anything other than allowance of all pending claims, then I formally request an interview with the Examiner. I encourage the Examiner to call me—the undersigned representative for the Applicant—so that we can talk about this matter so as to resolve any outstanding issues quickly and efficiently over the phone.

[0009] Please contact me or my assistant to schedule a date and time for a telephone interview that is most convenient for both of us. While email works great for us, I welcome your call to either of us as well. Our contact information may be found on the last page of this response.

Claim Amendments and Additions

[0010] Without conceding the propriety of the rejections herein and in the interest of expediting prosecution, Applicant amends claims 1, 10, 20, and 29-30 herein.

Formal Matters

Claims

[0011] The Examiner objects to claims 4-7 and 11-13 as being substantially duplicative thereof. Herein, Applicant would point out that independent claim 1 includes the element of "computing a product polynomial of the input polynomials, wherein the total number of coefficient multiplication operations is fewer than or equal to seventeen". This element is not found within independent claim 11, as such the two sets of claims noted are not duplicative in nature. Applicant respectfully requests that the Examiner withdraw this objection.

Substantive Matters

Claim Rejections under § 112

[0012] Claims 10 and 28 have been rejected under 35 U.S.C. § 112, 2nd ¶. In light of the amendments presented herein, Applicant submits that these rejections are moot. Claim 10 has been amended to stand alone as an independent claim. Claim 28 has been canceled. Accordingly, Applicant asks the Examiner to withdraw these rejections.

Claim Rejections under § 101

[0013] Claims 1-36 have been rejected under 35 U.S.C. § 101. The specification specifically points out that the multiplication of two polynomials (or integers) efficiently is a key in a variety of practical applications. Examples of such fields include: signal processing, cryptography, and digital security systems.

Further, the independent claims make clear that an output is reported. Clearly the claims are directed towards statutory subject matter, especially if read in light of the specification. Applicant respectfully submits that these claims comply with the patentability requirements of § 101 and that the § 101 rejections should be withdrawn. The Applicant further asserts that these claims are allowable. Accordingly, Applicant asks the Examiner to withdraw these rejections.

[0014] If the Examiner maintains the rejection of these claims, then the Applicant requests additional guidance as to what is necessary to overcome the rejection.

Claim Rejections under §§ 102 and/or 103

[0015] Claims 1-3, 8-10, 20-22, 27-29 and 34-36 have been rejected under 35 U.S.C. § 102(a) as being anticipated by the current application's background. Applicant respectfully traverses these rejections as the background does not teach the claim language. In an attempt to advance prosecution of the present application, Applicant has amended the claim language. Claims 1 and 10 have been amended to remove the term "less than or equal to" and the addition of the clarifying language "wherein a first polynomial is nominally described as $a(X) = a_0 + a_1X + a_2X^2 + a_3X^3 + a_4X^4 + a_5X^5$ and a second polynomial is nominally described as $b(X) = b_0 + b_1X + b_2X^2 + b_3X^3 + b_4X^4 + b_5X^5$ and terms a_5 and b_5 are non-zero values".

[0016] The background clearly does not disclose obtaining two input polynomials, each with degree 5, and computing a product polynomial of the input polynomials, wherein the total number of coefficient multiplication operations is

fewer than or equal to seventeen. Instead, the “classic schoolbook” way to multiply two univariate polynomials of degree at most $n-1$ (i.e., with n terms each, some of whose coefficients may be zero) needs n^2 multiplication of coefficients. As such, a degree 5 polynomial would require 25 multiplications. Clearly this result is greater than the claimed 17.

Claims 35 and 36

[0017] It appears that independent claims 35 and 36 were not addressed at all in the outstanding office action as the cited portion of the background clearly does not discuss logarithms. Applicant asks for further clarification regarding the reason for rejecting claims 35 and 26 as the background clearly does not anticipate the current claims.

Dependent Claims

[0018] In addition to its own merits, each dependent claim is allowable for the same reasons that its base claim is allowable. Applicant requests that the Examiner withdraw the rejection of each dependent claim where its base claim is allowable.

Conclusion

[0019] All pending claims are in condition for allowance. Applicant respectfully requests reconsideration and prompt issuance of the application. If any issues remain that prevent issuance of this application, the **Examiner is urged to contact me before issuing a subsequent Action.** Please call/email me or my assistant at your convenience.

Respectfully Submitted,

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